HEREDITY

An International Journal of Genetics

EDITORIAL BOARD

Professor B. C. Clarke, Nottingham (Editor)
Dr B. Charlesworth, Sussex (Junior Editor)

Dr E. L. Breese, Aberystwyth	(1978-83)
Dr L. M. Cook, Manchester	(1978-83)
Professor M. A. Ferguson-Smith, Glasgow	(1979-84)
Dr D. P. Fox, Aberdeen	(1979-84)
Dr M. D. Gale, Cambridge	(1979-84)
Dr M. J. Kearsey, Birmingham	(1979-84)
Dr J. R. G. Turner, Leeds	(1979-84)
Dr A. J. Bateman, Manchester	(1980-85)
Dr P. D. S. Caligari, Edinburgh	(1980-85)
Professor J. R. S. Fincham, Edinburgh	(1980-85)
Dr G. M. Hewitt, Norwich	(1980-85)
Dr M. G. Bulmer, Oxford	(1981-86)
Dr J. S. Gale, Birmingham	(1981-86)
Dr C. Smith, Edinburgh	(1981-86)
Professor W. Scharloo, Utrecht	(1981-86)
Dr D. Charlesworth, Sussex	(1982-87)
Dr G. Dover, Cambridge	(1982-87)

HEREDITY

Edited by

Bryan Clarke
Nottingham

An International Journal of Genetics founded in 1947 by C D Darlington and R A Fisher and now owned by the Genetical Society of Great Britain

Volume 49

1982

Longman

PRINTED IN GREAT BRITAIN BY
J. W. ARROWSMITH LTD., BRISTOL

CONTENTS

PART 1 AUGUST

PAGE

McKENZIE, J. A., WHITTEN, M. J. and ADENA, M. A. The effect of genetic background on the fitness of diazinon resistance genotypes of the Australian sheep blowfly, *Lucilia cuprina* 1

TANKSLEY, S. D., MEDINA-FILHO, H. and RICK, C. M. Use of naturally-occurring enzyme variation to detect and map genes controlling quantitative traits in an interspecific backcross of tomato 11

LINDE-LAURSEN, I. Linkage map of the long arm of barley chromosome 3 using C-bands and Marker genes 27

MAJERUS, M., O'DONALD, P. and WEIR, J. Evidence for preferential mating in *Adalia bipunctata* 37

BUTLIN, R. K., READ, I. L. and DAY, T. H. The effects of a chromosomal inversion on adult size and male mating success in the seaweed fly, *Coelopa frigida* . . 51

TAI, G. C. C. Estimation of double reduction and genetic parameters of autotetraploids 63

YOUSIF, M. E. and SKIBINSKI, D. O. F. Directional-disruptive selection in *Drosophila melanogaster* 71

MUENCHOW, G. A loss-of-alleles model for the evolution of distyly 81

HEAL, J. R. Colour patterns of Syrphidae: IV. Mimicry and variation in natural populations of *Eristalis tenax* 95

NOTES AND COMMENTS

SALAMINI, F., BREMENKAMP, M. and MAROTTA, R. Origin of the inactive regulatory element *Bg-in* of the maize *o2m(r)-Bg* system of controlling elements 111

POWLING, A. Restriction endonuclease analysis of mitochondrial DNA from sugarbeet with normal and male-sterile cytoplasms 117

BOOK REVIEWS 121

BOOKS RECEIVED 129

GENETICAL SOCIETY ABSTRACTS (April 1982 meeting) 131

GENETICAL SOCIETY OFFICERS 144

PART 2 OCTOBER

JOHNSON, M. S. Polymorphism for direction of coil in *Partula suturalis*: Behavioural isolation and positive frequency dependent selection 145

ARTHUR, W. Control of shell shape in *Lymnaea stagnalis* 153

AOKI, K. Additive polygenic formulation of Hamilton's model of kin selection . 163

PAGE

MAJERUS, M. E. N. Genetic control of two melanic forms of *Panolis flammea* (Lepidoptera: Noctuidae) 171

SEAL, A. G. and REES, H. The distribution of quantitative DNA changes associated with the evolution of diploid *Festuceae* 179

KLEKOWSKI, E. J. JR. Genetic load and soft selection in ferns 191

TORO, M. A. and CHARLESWORTH, B. An attempt to detect genetic variation in sex ratio in *Drosophila melanogaster* 199

POONI, H. S. and JINKS, J. L. Comparative analysis of association and dispersion crosses to detect linkage and epistatic components of variation 211

DOWNES, S. P. and THODAY, J. M. Effect of yeasts on polymorphism at the *Adh* locus in *Drosophila melanogaster* 221

YANNOPOULOS, G., STAMATIS, N. and ZACHAROPOULOU, A. Genetic studies of a cytoplasmic suppressor which inactivates the male recombination factor 31.1 MRF in *Drosophila melanogaster* 235

NOTES AND COMMENTS

COLGAN, D. J. Somatic effects of hybrid dysgenesis in *Drosophila melanogaster* . 243

MUGGLETON, J. A model for the elimination of insecticide resistance using heterozygous disadvantage 247

MANNING, J. T. Recombination maintains equilibrium frequencies of common alleles 253

HAYWARD, M. D. and ZARUK, M. T. M. Allozyme variation in the inbreeding species *Lolium temulentum* L. 255

ERRATUM 259

BOOK REVIEW 261

BOOKS RECEIVED 263

GENETICAL SOCIETY OFFICERS—GENETICAL SOCIETY MEMBERSHIP LIST (tinted paper)

PART 3 DECEMBER

JINKS, J. L. and POONI, H. S. Predicting the properties of pure breeding lines extractable from a cross in the presence of linkage 265

ZIEHE, M. Zygotic genotypic frequencies under selection on female or male gamete production in partially self-fertilizing plant populations 271

JINKS, J. L. and POONI, H. S. Determination of the environmental sensitivity of selection lines of *Nicotiana rustica* by the selection environment 291

HAZEL, W. N. and WEST, D. A. Pupal colour dimorphism in Swallowtail butterflies as a threshold trait: selection in *Eurytides marcellus* (Cramer) 295

VAN DAMME, J. M. M. and VAN DELDEN, W. Gynodioecy in *Plantago lanceolata* L. I. Polymorphism for plasmon type 303

RAMULU, K. S. Genetic instability at the *S*-locus of *Lycopersicon peruvianum* plants regenerated from *in vitro* culture of anthers: generation of new *S*-specificities and *S*-allele reversions 319

PAGE

TAI, G. C. C. Estimation of double reduction and genetic parameters in autotetraploids based on 4*X*–2*X* and 4*X*–4*X* matings 331

CHOJECKI, A. J. S. and GALE, M. D. Genetic control of glucose phosphate isomerase in wheat and related species 337

NOTES AND COMMENTS

DOCHERTY, Z. Self-incompatibility in *Linaria* 349

SUSEELAN, K. N., PRABHAKARA RAO, M. V., BHATIA, C. R. and NARAYANA RAO, I. Mapping of an alcohol dehydrogenase (*Adh–A1*) structural gene on chromosome 4A of Durum wheat 353

BOOK REVIEWS 359

BOOKS RECEIVED 363

GENETICAL SOCIETY OFFICERS 364